

APPEAL BRIEF	
First Named Inventor: Philip D. Nguyen	Docket Number: 2002-IP-006415U1P1D2
Application Number: 10/777,412	Art Unit: 1796
Filing Date: February 12, 2004	Examiner: Daniel S. Metzmaier
Title: Method of Tracking Fluids Produced from Various Zones in Subterranean Well	

MAIL Appeal Brief - Patents
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

Dear Sir,

Pursuant to 37 C.F.R. § 41.37, please consider the following Appellants' Brief in the above-referenced application currently before the Board of Patent Appeals and Interferences. This brief is submitted in support of Appellants' Notice of Appeal from the rejections in the Final Office Action dated June 15, 2009 (the "Final Office Action"), the Advisory Action dated September 16, 2009 (the "Advisory Action"), and the Notice of Panel Decision from the Pre-Appeal Brief Review dated January 7, 2010 (the "Pre-Appeal Decision").

Pursuant to the Pre-Appeal Decision from Pre-Appeal Brief Review dated January 7, 2010, the shortened statutory period for filing this Appeal Brief is one month from the mailing of that decision (February 7, 2010), or two months from the receipt of the Notice of Appeal, which was filed on December 15, 2009 (February 15, 2010).

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I. STATEMENT OF THE REAL PARTY IN INTEREST

The real party in interest in the referenced Application is:

Halliburton Energy Services, Inc.
10200 Bellaire Blvd.
Houston, Texas 77072

assignee of all rights and interests in the present application. An assignment to Halliburton of the parent to this continuation-in-part application was signed by the inventor and recorded with the United States Patent and Trademark Office at Reel/Frame 013514/0539 on November 18, 2002 and is effective under Manual of Patent Examining Procedure ("MPEP") § 306.

II. RELATED APPEALS AND INTERFERENCES

To the best of the knowledge of the Appellant and the Appellant's legal representative, there are no other appeals or interferences that will directly affect, be affected by, or have a bearing on the decision of the Board of Patent Appeals and Interferences ("the Board") in this appeal.

III. STATUS OF CLAIMS

The present application, Serial No. 10/777,412 (hereinafter "the Application"), was filed February 12, 2004 and included claims 1–28. Twenty-five additional claims have been added. Thirty-seven claims have been cancelled. Four claims have been withdrawn. Claims 21, 29, 31 and 44-53 are finally rejected and form the basis of the present appeal. A listing of all appealed claims is provided in Appendix A of this Appeal Brief.

IV. STATUS OF AMENDMENTS

All amendments submitted to the Examiner during prosecution prior to the submission of this Appeal Brief have been entered in the record. The Claims provided in Appendix A hereto reflect claims 21, 29, 31 and 44-53 as they presently stand.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The application contains three independent claims, namely claims 21, 44, and 49, which are the subject of this appeal. Appellant proffers the following summary of the independent claims, identifying exemplary support in the as-filed specification. While examples of supporting disclosure are presented, it should be understood that additional examples and/or embodiments may also be disclosed within the specification and drawings as well.

With regard to aspects of the invention set forth in independent claim 21, discussion of the recited features of claim 21 can be found at least in the below-cited locations of the specification. Embodiments of the present invention described in claim 21 are directed to a proppant composition comprising a particulate material (p. 7, ll. 17-21) that has been coated with a coating composition (p. 4, ll. 7-9; p. 5, ll. 14-17) comprising a homogenous blend of a tracking composition and a resin composition (p. 5, ll. 14-17), wherein the tracking composition comprises a substantially non-radioactive tracking material (p. 1, ll. 17-20) selected from the group consisting of: a metal salt wherein a metal portion of the metal salt is selected from the group consisting of gold, silver, lithium, molybdenum, and vanadium (p. 4, ll. 9-15); and a metal salt selected from the group consisting of barium bromide, barium iodide, beryllium fluoride, beryllium bromide, beryllium chloride, cadmium bromide, cadmium iodide, chromium bromide,

chromium chloride, chromium iodide, cesium bromide, cesium chloride, sodium bromide, sodium iodide, sodium nitrate, sodium nitrite, potassium iodide, potassium nitrate, manganese bromide, zinc bromide, zinc iodide, sodium monofluoroacetate, sodium trifluoroacetate, sodium 3-fluoropropionate, potassium monofluoroacetate, potassium trifluoroacetate, and potassium 3-fluoropropionate (p. 3, ll. 7-19; p. 5, l. 14 - p. 6, l. 3).

With regard to aspects of the invention set forth in independent claim 44, discussion of the recited features of claim 44 can be found at least in the below cited locations of the specification. Embodiments of the present invention described in claim 44 are directed to a proppant composition comprising particulate material (p. 7, ll. 17-21) that has been coated with a coating composition comprising a tracking composition and a resin composition (p. 5, ll. 14-17), wherein the tracking composition comprises a substantially non-radioactive tracking material (p. 1, ll. 17-20) selected from the group consisting of: a metal salt wherein a metal portion of the metal salt is selected from the group consisting of gold, silver, molybdenum, and vanadium (p. 4, ll. 9-15); and a metal salt selected from the group consisting of barium bromide, barium iodide, beryllium fluoride, beryllium bromide, beryllium chloride, cadmium bromide, cadmium iodide, chromium bromide, chromium chloride, chromium iodide, cesium bromide, cesium chloride, sodium bromide, sodium iodide, sodium nitrate, sodium nitrite, potassium iodide, potassium nitrate, manganese bromide, zinc bromide, zinc iodide, sodium monofluoroacetate, sodium trifluoroacetate, sodium 3-fluoropropionate, potassium monofluoroacetate, potassium trifluoroacetate, and potassium 3-fluoropropionate (p. 3, ll. 7-19; p. 5, l. 14 - p. 6, l. 3).

With regard to aspects of the invention set forth in independent claim 49, discussion of the recited features of claim 49 can be found at least in the below cited locations of the specification. Embodiments of the present invention described in claim 44 are directed to a proppant composition comprising a particulate material (p. 7, ll. 17-21) that has been coated with a coating composition comprising a tracking composition (p. 4, ll. 7-9), wherein the tracking composition comprises a substantially non-radioactive tracking material (p. 1, ll. 17-20), wherein the substantially non-radioactive tracking material comprises at least one metal salt selected from the group consisting of: barium bromide, barium iodide, beryllium fluoride, beryllium bromide, beryllium chloride, cadmium bromide, cadmium iodide, chromium bromide, chromium chloride, chromium iodide, cesium bromide, cesium chloride, sodium bromide, sodium iodide, sodium nitrate, sodium nitrite, potassium iodide, potassium nitrate, manganese bromide, zinc bromide, zinc iodide, sodium monofluoroacetate, sodium trifluoroacetate, sodium 3-fluoropropionate, potassium monofluoroacetate, potassium trifluoroacetate, and potassium 3-fluoropropionate (p. 3, ll. 7-19; p. 5, l. 14 - p. 6, l. 3).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 21, 29, 31 and 44-53 are unpatentable under 35 U.S.C. § 102(b) over U.S. Patent No. 5,582,250 to Constien *et al.* (hereinafter "*Constien*").
2. Whether claims 21, 29, 31 and 44-53 are unpatentable under 35. U.S.C § 103(a) over *Constien*.

VII. ARGUMENT

A. CLAIM INTERPRETATION

The Examiner's rejection of Appellants' claims stems, at least in part, from the

Examiner's interpretation of certain terms in the claims. Appellants believe that the Examiner has incorrectly applied the standard for interpreting the meaning of claims during prosecution, resulting in misinterpretation of the claims.

i. The Standard for Interpreting Claims During Prosecution

During examination, a term or a word used in a claim should be given its broadest reasonable construction in light of the specification as interpreted by one of ordinary skill in the art unless a specific meaning is assigned to the term by the applicant.¹ The "broadest reasonable construction standard" must be consistent with an interpretation that those skilled in the art would reach² as well as an interpretation that is consistent with the specification.³ Two possibilities then exist for interpreting the proper meaning of claims during prosecution: 1) using the plain and ordinary meaning of the word unless, 2) the specification expressly provides a special definition for a term used in the claims.

The plain meaning of the words of a claim may be used unless the plain meaning is inconsistent with the specification or the understanding of one of ordinary skill in the art.⁴ The plain meaning of a word, also known as the ordinary and customary meaning, is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.⁵ As noted by the Court of Appeal for the Federal Circuit, "[i]t is the use of the words in the context of the written description and customarily by those skilled in the relevant art that accurately reflects both the 'ordinary' and the 'customary'

¹ See MPEP § 2111; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005) (*en banc*) ("The Patent and Trademark Office ('PTO') determines the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction 'in light of the specification as it would be interpreted by one of ordinary skill in the art.'").

² *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999).

³ *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

⁴ *See Id.*

meaning of the terms in the claims.”⁶ Evidence of the ordinary and customary meaning of a word may come from the specification, the prosecution history, and extrinsic evidence concerning scientific principles, the meaning of technical terms, and the state of the art.⁷ If the evidence available from extrinsic sources, such as dictionaries, shows that more than one definition exists for a term, the intrinsic record (e.g., the specification, prosecution history, etc.) must be used to identify which definition is consistent with the specification.⁸

ii. “Coated”

The Examiner has indicated in the Advisory Action that the claims are drafted in product-by-process language, presumably due to the limitation of “a particulate material that has been coated with a coating composition” in independent claims 21, 44, and 49. Appellants respectfully disagree. The limitation of “a particulate material that has been coated with a coating composition” is a structural limitation entitled to weight as it imparts a structural property to the claimed proppant composition. This position finds support in *In re Hallman*, 655 F.2d 212, 215 (CCPA 1981), which explains that process recitations in product claims are entitled to weight to the extent that the process imparts one or more structural properties to the product:

Product claims may be drafted to include process steps to wholly or partially define the claimed product. *In re Luck*, 476 F.2d 650, 177 USPQ 523 (CCPA 1973). To the extent that the process limitations distinguish the products over the prior art, they must be given the

⁵ *Phillips*, 415 F.3d at 1313.

⁶ *Ferguson Beauregard/Logic Controls v. Mega Sys.*, 350 F.3d 1327, 1338, 69 USPQ2d 1001, 1009 (Fed. Cir. 2003).

⁷ *Phillips*, 415 F.3d at 1314.

⁸ See *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1300, 67 USPQ2d 1132, 1137 (Fed. Cir. 2003).

same consideration as traditional product characteristics. *Id.* at 525.

Similarly, *In re Garnero*, 412, F.2d 276, 279 (CCPA 1969) supports the position that process steps in product claims are entitled to weight if structural limitations result from the process:

The trouble with the solicitor's approach is that it necessarily assumes that claim 1 should be construed as a product claim containing a process, rather than structural, limitation. However, it seems to us that the recitation of the particles as 'interbonded one to another by interfusion between the surfaces of the perlite particles' is as capable of being construed as a structural limitation as 'intermixed,' 'ground in place,' 'press fitted,' 'etched,' and 'welded,' all of which at one time or another have been separately held capable of construction as structural, rather than process, limitations. The correct inquiry therefore, it appears to us, is whether the product defined by claim 1 is patentably distinguished over the disclosures of [the prior art] in view of the structural limitation defining the panel as 'consisting essentially of expanded perlite particles . . . interbonded one to another by interfusion between the surfaces of the perlite particles.'

Accordingly, the limitation of "a particulate material that has been coated with a coating composition" in independent claims 21, 44, and 49 recites a structural limitation that the coating composition be coated or disposed on the surface of the particulate material.

iii. "Resin Composition"

The Examiner has indicated that water soluble interpolymers read on a "resin composition." Appellants respectfully disagree. As evidence of the ordinary meaning of a resin, Appellants point to the Schlumberger Oilfield Glossary, which contains definitions pertinent to the field of Appellants endeavor. The Schlumberger Oilfield Glossary defines a "resin" in the field of drilling fluids as:

Organic material having low solubility. Resins are usually large and complex polymeric molecules with noncrystalline structure and no distinct melting point or other definitive properties. Resins are used as additives to improve filter cake, provide lubricity or stop lost circulation as lost-circulation material. Resins are derived from plant sources (such as pine trees), some are residues of manufacturing processes and some resins are mined material.⁹

This definition is consistent with the intrinsic record, including both the specification and the references incorporated therein. The specification states;

The proppant can be pre-coated as in the case of curable resin-coated proppants, for example, such as those commercially available from Santrol or Acme Borden, or it can be coated on-the-fly during the fracturing job treatment. The nature of the resin materials and the processes for performing the coating process is well known to those skilled in the art, as represented by U.S. Patent No. 5,609,207 to Dewprashad et al., the entire disclosure of which is hereby incorporated by reference.

Specification ¶ [0015]. The disclosure of U.S. Patent No. 5,609,207 to Dewprashad *et al.* (hereinafter "*Dewprashad*") states:

Epoxy resins preferred for use in the inventive epoxy resin system are those which (a) will coat a particulate material when the particulate material is suspended in a gelled carrier and (b) will harden when placed downhole such that the epoxy resin-coated particulate material is thereby consolidated to form a hard permeable mass.

Dewprashad at col. 4, ll. 50-55. Thus the ordinary meaning of a "resin composition" to one of ordinary skill in the art and in light of the specification is an organic material having low water solubility that is capable of being coated or disposed on the surface of the particulate material. Thus, any highly water soluble material would not read on the

⁹ Schlumberger Oilfield Glossary, definition of "resin," available at

limitation of a “resin composition.”

B. CLAIMS 21, 29, 31, AND 44-53 ARE NOT ANTICIPATED BY CONSTIEN

In order for a reference to anticipate the Appellants’ invention under 35 U.S.C. § 102(b), the reference must disclose each and every limitation of the claims. See MPEP § 2131. Further, “unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations *arranged or combined in the same way as recited in the claim*, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.” *Net MoneyIN, Inc. v. VeniSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (emphasis added). Further, a reference must identify something falling within the claimed subject matter with sufficient specificity to constitute a description thereof within the purview of § 102. *In re Schaumann*, 572 F.2d 312, 317 (CCPA 1978).

i. *Claims 21, 29, 31, 44-48, 52, and 53 are not Anticipated by Constien*

Constien fails to disclose at least one element of claims 21, 29, 31, 44-48, 52, and 53 -- “a proppant composition comprising a particulate material that has been coated with a coating composition comprising a homogenous blend of a tracking composition and a resin composition” as required by independent claim 21; “a proppant composition comprising a particulate material that has been coated with a coating composition comprising a tracking composition and a resin composition” as required by independent claim 44; and “a proppant composition comprising a particulate material that has been coated with a coating composition comprising a tracking composition” and “wherein the coating composition further comprises a resin composition” as required by dependent

claims 52 and 53. Therefore, *Constien* does not anticipate claims 21, 29, 31, 44-48, 52, and 53.

First, *Constien* fails to disclose a "proppant composition comprising a particulate material that has been coated with a coating composition comprising a tracking composition and a resin composition." Rather than disclosing a particulate material coated with a coating composition comprising a resin composition as defined by Appellants, *Constien* discloses particulates placed in a fluid comprising viscosifying agents. *Constien*, col. 4, lines 41-45. The viscosifying agents are described as comprising "a water soluble or water dispersible interpolymer having pendant hydrophobic groups chemically bonded thereto." *Id.* at col. 4, ll. 61-63. As is known to one of ordinary skill in the art, it is the interaction of the water soluble or water dispersible interpolymers in an aqueous fluid that causes an increase in the viscosity of the fluid. Specifically, the viscosifier is intended to increase the viscosity of the fracturing fluid and thus is soluble in and remains in the aqueous phase. A resin does not viscosify a fluid since resins have a low water solubility as described above in Section VII.A.iii. Therefore, the disclosure of a viscosifying agent does not anticipate the use of a resin.

Further, the disclosure of a water soluble or water dispersible interpolymer does not inherently disclose a resin. The Examiner stated in the Advisory Action that "the vinyl addition polymers disclosed in the *Constien* reference would have been expected to contain residual unsaturation in addition to the pendant (column[n] 5, lines 26) alkenyl groups. Said unsaturated groups would have been expected to be curable. Also, the polymers of the *Constien* reference may contain groups that are curable by condensation." Advisory Action. The interpolymers of *Constien* "are vinyl addition

polymers in which two or more vinyl monomers [w]ith ethylenic unsturation are reacted together under polymerization conditions.” *Constien*, col. 5, ll. 1-4. Thus, the interpolymers require polymerization conditions to be formed prior to use in the fluid of *Constien*. As would be evident to one of ordinary skill in the art, polymerization conditions require an activator or initiator which is not present in the fluids disclosed in *Constien*. Thus, one of ordinary skill in the art would not expect that the interpolymers would undergo any further reactions in the fluids of *Constien*. The Examiner has failed to provide any evidence that the vinyl addition polymers disclosed in *Constien* would have been expected to be curable—a proposition that would not occur under the conditions taught in *Constien*.

If the Examiner is relying on a theory of “implicit” or “inherent” disclosure, the fact that the interpolymers “may” contain groups that are curable by condensation “is not sufficient to establish the inherency of that characteristic.” See MPEP § 2112. The Manual of Patent Examining Procedure instead requires “a basis in fact and/or technical reasoning . . . that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Id.* (emphasis in original). Nothing in *Constien* suggests that a condensation reaction could occur that would form a resin that has a low solubility, much less indicates that such a resin would necessarily form. Since a reference must disclose each and every limitation of the claims to anticipate the Appellants’ invention under 35 U.S.C. § 102(b) and *Constien* does not disclose a resin composition explicitly or inherently, *Constien* does not anticipate claims 21, 29, 31, 44-48, 52, or 53.

Moreover, the Examiner argues that *Constien* discloses that particulates may be placed in a ZnBr_2 brine, and that when the particulates are placed in this brine, the particulates will be coated with "a coating composition comprising a tracking composition." Final Office Action at 3. Appellants respectfully disagree. As described above, a proper interpretation of "coated" requires that the resin composition be coated or disposed on the surface of the particulate material. As disclosed in *Constien*, "[t]he fluid is prepared by first mixing brine to the desired density and adding additional additives such as viscosifying agents, corrosion inhibitors or other special additives as indicated by the specific well conditions. The low density proppant is added either in a batch mix or continuous mix process and circulated to the position in the wellbore where the perforations are to be placed." *Constien*, col. 5, ll. 42-48. Simply placing the particulates in a solution of water soluble or water dispersible interpolymers and ZnBr_2 brine does not result in a resin composition or a tracking composition being "coated" on the particulate material. In order to anticipate a claim under 35 U.S.C. § 102, the limitations must be arranged or combined in the same way as recited in the claim. As *Constien* does not disclose any materials "coated" on a particulate material, *Constien* does not anticipate claims 21, 29, 31, 44-48, 52, or 53.

Therefore, Appellants respectfully assert that claims 21, 29, 31, 44-48, 52, and 53 are not anticipated by *Constien*. Accordingly, Appellants respectfully request reversal of this rejection with respect to claims 21, 29, 31, 44-48, 52, and 53.

ii. *Claims 49-51 are not Anticipated by Constien*

Constien fails to disclose at least one element of claims 49-51 -- "a proppant composition comprising a particulate material that has been coated with a coating

composition comprising a tracking composition" as required by independent claim 49. Therefore, *Constien* cannot anticipate claims 49-51.

The Examiner argues that *Constien* discloses that particulates may be placed in a ZnBr_2 brine, and that when the particulates are placed in this brine, the particulates will be coated with "a coating composition comprising a tracking composition." Final Office Action at 3. Appellants respectfully disagree. As described above, a proper interpretation of "coated" requires that the tracking composition be coated or disposed on the surface of the particulate material. As disclosed in *Constien*, "[t]he fluid is prepared by first mixing brine to the desired density and adding additional additives such as viscosifying agents, corrosion inhibitors or other special additives as indicated by the specific well conditions. The low density proppant is added either in a batch mix or continuous mix process and circulated to the position in the wellbore where the perforations are to be placed." *Constien*, col. 5, ll. 42-48. Simply placing the proppant in a solution of water soluble or water dispersible interpolymers and ZnBr_2 brine does not result in a tracking composition being "coated" on the particulate material. In order to anticipate a claim under 35 U.S.C. § 102, the limitations must be arranged or combined in the same way as recited in the claim. As *Constien* does not disclose any materials "coated" on a particulate material, *Constien* does not anticipate claims 21, 29, 31, 44-48, 52, or 53.

Therefore, Appellants respectfully assert that claims 49-51 are not anticipated by *Constien*. Accordingly, Appellants respectfully request reversal of this rejection with respect to claims 49-51.

C. CLAIMS 21, 29, 31, AND 44-53 ARE NOT OBTAINED BY CONSTIEN

In order for a reference or combination of references to form the basis for a rejection under § 103(a), a *prima facie* case of obviousness must be established. Obviousness is determined by construing the scope of the prior art, identifying the differences between the claims and the prior art, determining the level of skill in the pertinent art at the time of the invention, and considering objective evidence present in the application indicating obviousness or nonobviousness. *Graham v. John Deere*, 383 U.S. 1, 17 (1966). The United States Supreme court has identified a number of rationales under which a *prima facie* case of obviousness may be established. See *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 1731 (2007). Each rationale is directed towards identifying known elements in the prior art. See MPEP § 2143. Applicants respectfully submit that due to the differences between the claims and the cited reference, the Examiner has not established a *prima facie* case of obviousness, in that *Constien* does not establish that each limitation of the present claim was known in the prior art.

i. Claims 21, 29, 31, 44-48, 52, and 53 are not Obtained by Constien

Claims 21, 29, 31, 44-48, 52, and 53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Constien*. *Constien* fails to disclose at least one element of claims 21, 29, 31, 44-48, 52, and 53 -- "a proppant composition comprising a particulate material that has been coated with a coating composition comprising a homogenous blend of a tracking composition and a resin composition" as required by independent claim 21; "a proppant composition comprising a particulate material that has been coated with a coating composition comprising a tracking composition and a resin composition" as

required by independent claim 44; and "a proppant composition comprising a particulate material that has been coated with a coating composition comprising a tracking composition" and "wherein the coating composition further comprises a resin composition" as required by dependent claims 52 and 53. Since each element of the claims has not been identified in the prior art, *Constien* does not establish a *prima facie* case of obviousness for claims 21, 29, 31, 44-48, 52, and 53.

First, *Constien* fails to disclose a "proppant composition comprising a particulate material that has been coated with a coating composition comprising a tracking composition and a resin composition." Rather than disclosing a particulate material coated with a coating composition comprising a resin composition as defined by Appellants, *Constien* discloses particulates placed in a fluid comprising viscosifying agents. *Constien*, col. 4, lines 41-45. The viscosifying agents are described as comprising "a water soluble or water dispersible interpolymer having pendant hydrophobic groups chemically bonded thereto." *Id.* at col. 4, ll. 61-63. As is known to one of ordinary skill in the art, it is the interaction of the water soluble or water dispersible interpolymers in an aqueous fluid that causes an increase in the viscosity of the fluid. Specifically, the viscosifier is intended to increase the viscosity of the fracturing fluid and thus is soluble in and remains in the aqueous phase. A resin does not viscosify a fluid since resins have a low water solubility as described above in Section VII.A.iii. The inability of a resin to viscosify a fluid teaches away from the use of a resin in the fluid of *Constien*, as the fluid would no longer be suitable for its intended purpose if not viscosified. Therefore, the disclosure of a viscosifying agent does not teach or suggest the use of a resin.

Further, the disclosure of a water soluble or water dispersible interpolymer does not inherently disclose a resin. The Examiner stated in the Advisory Action that “the vinyl addition polymers disclosed in the Constien reference would have been expected to contain residual unsaturation in addition to the pendant (column 5, lines 26) alkenyl groups. Said unsaturated groups would have been expected to be curable. Also, the polymers of the Constien reference may contain groups that are curable by condensation.” Advisory Action. The interpolymers of *Constien* “are vinyl addition polymers in which two or more vinyl monomers [w]ith ethylenic unsaturation are reacted together under polymerization conditions.” *Constien*, col. 5, ll. 1-4. Thus, the interpolymers require polymerization conditions to be formed prior to use in the fluid of *Constien*. As would be evident to one of ordinary skill in the art, polymerization conditions require an activator or initiator which is not present in the fluids disclosed in *Constien*. Thus, one of ordinary skill in the art would not expect that the interpolymers would undergo any further reactions in the fluids of *Constien*. The Examiner has failed to provide any evidence that the vinyl addition polymers disclosed in *Constien* would have been expected to be curable—a proposition that would not occur under the conditions taught in *Constien*.

If the Examiner is relying on a theory of “implicit” or “inherent” disclosure, the fact that the interpolymers “may” contain groups that are curable by condensation “is not sufficient to establish the inherency of that characteristic.” See MPEP § 2112. The Manual of Patent Examining Procedure instead requires “a basis in fact and/or technical reasoning . . . that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Id.* (emphasis in original). Nothing in *Constien*

suggests that a condensation reaction could occur that would form a resin that has a low solubility, much less indicates that such a resin would necessarily form. Since *Constien* must teach or suggest each and every limitation of the claims to form a *prima facie* case of obviousness and *Constien* does not disclose a resin composition explicitly or inherently, *Constien* does not establish a *prima facie* case of obviousness for claims 21, 29, 31, 44-48, 52, or 53.

Moreover, the Examiner argues that *Constien* discloses that particulates may be placed in a ZnBr_2 brine, and that when the particulates are placed in this brine, the particulates will be coated with "a coating composition comprising a tracking composition." Final Office Action at 3. Appellants respectfully disagree. As described above, a proper interpretation of "coated" requires that the resin composition be coated or disposed on the surface of the particulate material. As disclosed in *Constien*, "[t]he fluid is prepared by first mixing brine to the desired density and adding additional additives such as viscosifying agents, corrosion inhibitors or other special additives as indicated by the specific well conditions. The low density proppant is added either in a batch mix or continuous mix process and circulated to the position in the wellbore where the perforations are to be placed." *Constien*, col. 5, ll. 42-48. Simply placing the particulates in a solution of water soluble or water dispersible interpolymers and ZnBr_2 brine does not result in a resin composition or a tracking composition being "coated" on the particulate material. As *Constien* does not teach or suggest any materials "coated" on a particulate material, *Constien* does not establish a *prima facie* case of obviousness for claims 21, 29, 31, 44-48, 52, or 53.

Further, placing the particulates in a solution of water soluble or water dispersible interpolymers and ZnBr_2 brine as disclosed in *Constien* teaches away from the claimed invention since it would change the principle of operation. Specifically, the brine of *Constien* contains entirely water soluble salts. The principle of operation of the present invention for embodiments using proppant involves the use of a tracking composition that is used to identify the proppant upon flowback of the proppant. As stated in Appellant's specification, "metals are tagged onto proppant material or materials to be blended with proppant material to provide for the ready identification of flowback proppant from different stages or zones of the well." Specification at ¶ [0010]. Any tracking agent dissolved in the fluid of *Constien* that only incidentally contacts a proppant would not be available for identification of the flowback proppant. Specifically, if the proppant only contacts the fluid and does not have a tracking composition coated thereon, any formation fluids passing over the proppant once placed in the formation would displace the tracking composition. Thus, citing the contacting of a proppant with a brine rather than coating a tracking composition on a particulate material would change the principle of operation of the claimed invention.

Therefore, Appellants respectfully assert that claims 21, 29, 31, 44-48, 52, and 53 are not obviated by *Constien*. Accordingly, Appellants respectfully request reversal of this rejection with respect to claims 21, 29, 31, 44-48, 52, and 53.

ii. Claims 49-51 are not Obviated by Constien

Constien fails to disclose at least one element of claims 49-51 -- "a proppant composition comprising a particulate material that has been coated with a coating composition comprising a tracking composition" as required by independent claim 49.

Therefore, *Constien* does not establish a *prima facie* case of obviousness for claims 49-51.

The Examiner argues that *Constien* discloses that particulates may be placed in a ZnBr_2 brine, and that when the particulates are placed in this brine, the particulates will be coated with "a coating composition comprising a tracking composition." Final Office Action at 3. Appellants respectfully disagree. As described above, a proper interpretation of "coated" requires that the resin composition be coated or disposed on the surface of the particulate material. As disclosed in *Constien*, "[t]he fluid is prepared by first mixing brine to the desired density and adding additional additives such as viscosifying agents, corrosion inhibitors or other special additives as indicated by the specific well conditions. The low density proppant is added either in a batch mix or continuous mix process and circulated to the position in the wellbore where the perforations are to be placed." *Constien*, col. 5, ll. 42-48. Simply placing the particulates in a solution of water soluble or water dispersible interpolymers and ZnBr_2 brine does not result in a resin composition or a tracking composition being "coated" on the particulate material. As *Constien* does not teach or suggest any materials "coated" on a particulate material, *Constien* does not establish a *prima facie* case of obviousness for claims 49-51.

Further, placing the particulates in a solution of water soluble or water dispersible interpolymers and ZnBr_2 brine as disclosed in *Constien* teaches away from the claimed invention since it would change the principle of operation. Specifically, the brine of *Constien* contains entirely water soluble salts. The principle of operation of the present invention for embodiments using proppant involves the use of a tracking composition that is used to identify the proppant upon flowback of the proppant. As stated in Appellant's

specification, “metals are tagged onto proppant material or materials to be blended with proppant material to provide for the ready identification of flowback proppant from different stages or zones of the well.” Specification at ¶ [0010]. Any tracking agent dissolved in the fluid of *Constien* that only incidentally contacts a proppant would not be available for identification of the flowback proppant. Specifically, if the proppant only contacts the fluid and does not have a tracking composition coated thereon, any formation fluids passing over the proppant once placed in the formation would displace the tracking composition. Thus, citing the contacting of a proppant with a brine rather than coating a tracking composition on a particulate material would change the principle of operation of the claimed invention.

Therefore, Appellants respectfully assert that claims 49-51 are not obviated by *Constien*. Accordingly, Appellants respectfully request reversal of this rejection with respect to claims 49-51.

CONCLUSION

In light of the foregoing, Appellant respectfully requests that the final rejection of the pending claims should be reversed and the application be remanded for allowance of the pending claims, or, alternatively, remand the application for further examination if appropriate references can be found by the Examiner.

The Commissioner has been authorized to debit McDermott Will & Emery's Deposit Account No. 500417 (Reference No. 086108.0329), in the amount of \$520.00 under 37 C.F.R. § 41.20(b)(2) for filing an appeal brief. Should the Commissioner deem that any additional fees are due, the Commissioner is authorized to debit McDermott Will & Emery's Deposit Account No. 500417 (Reference No.

086108.0329).

Respectfully submitted,

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APPENDIX A: Claims Involved in the Appeal

Claims Appendix

Claims:

1.-20. (Canceled)

21. (Previously Presented) A proppant composition comprising a particulate material that has been coated with a coating composition comprising a homogenous blend of a tracking composition and a resin composition, wherein the tracking composition comprises a substantially non-radioactive tracking material selected from the group consisting of:

a metal salt wherein a metal portion of the metal salt is selected from the group consisting of gold, silver, lithium, molybdenum, and vanadium; and

a metal salt selected from the group consisting of barium bromide, barium iodide, beryllium fluoride, beryllium bromide, beryllium chloride, cadmium bromide, cadmium iodide, chromium bromide, chromium chloride, chromium iodide, cesium bromide, cesium chloride, sodium bromide, sodium iodide, sodium nitrate, sodium nitrite, potassium iodide, potassium nitrate, manganese bromide, zinc bromide, zinc iodide, sodium monofluoroacetate, sodium trifluoroacetate, sodium 3-fluoropropionate, potassium monofluoroacetate, potassium trifluoroacetate, and potassium 3-fluoropropionate.

22-28. (Canceled)

29. (Previously Presented) The proppant composition of claim 21 wherein the particulate material is selected from the group consisting of fibrous materials, tackifying agents, and deformable beads.

30. (Canceled)

31. (Previously Presented) The proppant composition of claim 21 further comprising a particulate material tagged with the tracking material.

32-43. (Canceled)

44. (Previously Presented) A proppant composition comprising particulate material that has been coated with a coating composition comprising a tracking composition and a resin composition, wherein the tracking composition comprises a substantially non-radioactive tracking material selected from the group consisting of:

a metal salt wherein a metal portion of the metal salt is selected from the group consisting of gold, silver, molybdenum, and vanadium; and

a metal salt selected from the group consisting of barium bromide, barium iodide, beryllium fluoride, beryllium bromide, beryllium chloride, cadmium bromide, cadmium iodide, chromium bromide, chromium chloride, chromium iodide, cesium bromide, cesium chloride, sodium bromide, sodium iodide, sodium nitrate, sodium nitrite, potassium iodide, potassium nitrate, manganese bromide, zinc bromide, zinc iodide, sodium monofluoroacetate, sodium trifluoroacetate, sodium 3-fluoropropionate, potassium monofluoroacetate, potassium trifluoroacetate, and potassium 3-fluoropropionate.

45. (Previously Presented) The proppant composition of claim 44 wherein the particulate material is selected from the group consisting of fibrous materials, tackifying agents, and deformable beads.

46. (Previously Presented) The proppant composition of claim 44 further comprising a particulate material tagged with the tracking material.

47. (Canceled)

48. (Previously Presented) The proppant composition of claim 44 wherein the resin composition and the tracking composition are a homogenous blend that is coated on the particulate material.

49. (Previously Presented) A proppant composition comprising a particulate material that has been coated with a coating composition comprising a tracking composition, wherein the tracking composition comprises a substantially non-radioactive tracking material, wherein the substantially non-radioactive tracking material comprises at least one metal salt selected from the group consisting of: barium bromide, barium iodide, beryllium fluoride, beryllium bromide, beryllium chloride, cadmium bromide, cadmium iodide, chromium bromide, chromium chloride, chromium iodide, cesium bromide, cesium chloride, sodium bromide, sodium iodide, sodium nitrate, sodium nitrite, potassium iodide, potassium nitrate, manganese bromide, zinc bromide, zinc iodide, sodium monofluoroacetate, sodium trifluoroacetate, sodium 3-fluoropropionate, potassium monofluoroacetate, potassium trifluoroacetate, and potassium 3-fluoropropionate.

50. (Previously Presented) The proppant composition of claim 49 wherein the particulate material is selected from the group consisting of fibrous materials, tackifying agents, and deformable beads.

51. (Previously Presented) The proppant composition of claim 49 further comprising a particulate material tagged with the substantially non-radioactive tracking material.

52. (Previously Presented) The proppant composition of claim 49 wherein the coating composition further comprises a resin composition.

53. (Previously Presented) The proppant composition of claim 52 wherein the resin composition and the tracking composition are a homogenous blend that is coated on the particulate material.

APPENDIX B: EVIDENCE APPENDIX

None

APPENDIX C: RELATED PROCEEDINGS APPENDIX

None